AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently amended): Device ~~(1)~~ for the transmission of power between a shaft ~~(2)~~ of a thermal engine ~~(3)~~ and a shaft ~~(4)~~ of wheels ~~(5)~~, comprising:

- a first and a second electric machine ~~(6, 7)~~, and

- a mechanical assembly ~~(9)~~ connecting with each other the shaft ~~(4)~~ of the wheels ~~(5)~~, the shaft ~~(2)~~ of the engine ~~(3)~~, and shafts ~~(10, 11)~~ of the two electric machines ~~(6, 7)~~, this mechanical assembly ~~(9)~~ being formed by at least two epicycloidal gear trains, these two epicycloidal gear trains comprising each several elements which mesh reciprocally,

~~characterized in that~~ wherein it comprises,

- a switching device ~~(21.2)~~ comprising means ~~(51, 53)~~ for connecting the shaft ~~(10)~~ of the first machine ~~(6)~~, either to the shaft ~~(2)~~ of the engine ~~(3)~~, or to an element ~~(27)~~ of one of the gear trains of the mechanical assembly ~~(9)~~.

2. (Currently amended): Device according to claim 1 ~~characterized in that~~ wherein

- the mechanical assembly ~~(9)~~ is formed by a first and a second epicycloidal gear train ~~(31, 32)~~, these first and second epicycloidal gear trains ~~(31, 32)~~ being connected with each other through their planet carriers ~~(33.1, 33.2)~~, a sun gear ~~(34)~~ of the first gear train ~~(31)~~ being connected to a ring gear ~~(35)~~ of the second gear train ~~(32)~~.

3. (Currently amended): Device according to claim 2 ~~characterized in that~~ wherein

- the switching device ~~(21.2)~~ comprises means ~~(51, 53)~~ for connecting the shaft ~~(11)~~ of the first machine ~~(6)~~, either to the shaft ~~(2)~~ of the engine ~~(3)~~, or to the ring gear of the first epicycloidal gear train ~~(31)~~.

4. (Currently amended): Device according to ~~any one of claims 1 to 3 characterized in that~~ claim 1 wherein

- the ratios ~~(R1, R2)~~ of the epicycloidal gear trains ~~(31, 32)~~ are chosen so that, when the rotation speed of the element ~~(27)~~ of one of the gear trains to which the switching device ~~(21.2)~~ is capable of being connected is equal to the rotation speed of the shaft ~~(2)~~ of the engine ~~(3)~~, the rotation speed of the shaft ~~(11)~~ of the second machine ~~(7)~~ is null.

5. (Currently amended): Device according to ~~any one of claims 1 to 4, characterized in that it~~ claim 1 which comprises a control device ~~(30)~~ that drives the thermal engine ~~(3)~~, both electric machines ~~(6, 7)~~, and the switching device ~~(21.2)~~.

6. (Currently amended): Device according to ~~any one of claims 1 to 5 characterized in that~~ claim 1 wherein

- the switching device ~~(21.2)~~ comprises a sliding sleeve ~~(51)~~ and a fork ~~(53)~~.

7. (Currently amended): Device according to ~~any one of claims 1 to 6 characterized in that it~~ claim 1 which comprises an electrical connection device ~~(8)~~ which connects the electric machines with each other.

8. (Currently amended): Device according to claim 7 ~~characterized in that~~ wherein

- the electrical connection device ~~(8)~~ comprises a DC voltage bus ~~(14)~~ and two inverters each connected to one of the electric machines and to this bus ~~(14)~~.

9. (Currently amended): Device according to claim 8 ~~characterized in that it~~ which comprises a battery connected to the voltage electric bus ~~(14)~~.

10. (Currently amended): Device according to ~~one of claims 1 to 9 characterized in that it~~ claim 1 which comprises another switching device ~~(21.1)~~ comprising means ~~(51, 53)~~ for connecting the shaft ~~(4)~~ of the second machine ~~(7)~~, either to the shaft ~~(4)~~ of the second machines ~~(7)~~, either to the shaft ~~(4)~~ of the wheels ~~(5)~~, or to an element ~~(26)~~ of one of the gear trains of the mechanical assembly ~~(9)~~.

11. (Currently amended): Process for the transmission of power between a shaft ~~(2)~~ of an engine ~~(3)~~ and a shaft ~~(4)~~ of wheels ~~(5)~~ implementing,

- two electric machines ~~(6, 7)~~, and

- a mechanical assembly ~~(9)~~ connecting with each other shafts ~~(10, 11)~~ of the two electric machines ~~(6, 7)~~, the shaft ~~(2)~~ of the engine ~~(3)~~, and the shaft ~~(4)~~ of the wheels ~~(5)~~, this mechanical

assembly ~~(9)~~ comprising at least two epicycloids gear trains, these at least two epicycloidal gear trains comprising each three element which mesh reciprocally, and in which:

- the shaft ~~(10)~~ of the first machine ~~(6)~~ is connected to a an element ~~(27)~~ of one of the epicycloidal gear trains and the shaft ~~(11)~~ of the second machine ~~(7)~~ is connected to the shaft ~~(4)~~ of the wheels ~~(5)~~, in a first mode of operation,

- the shaft ~~(10)~~ of the first machine ~~(6)~~ is connected to element ~~(27)~~ of one of the epicycloidal gear trains and the shaft ~~(11)~~ of the second machine ~~(7)~~ is connected to another element ~~(26)~~ of one of the epicycloidal gear trains, in a second mode of operation,

~~characterized in that~~ wherein

- in a third mode of operation, the shaft ~~(10)~~ of the first machine ~~(6)~~ is connected to the shaft ~~(2)~~ of the engine ~~(3)~~ and the shaft ~~(11)~~ of the second machine ~~(7)~~ is connected to the other element ~~(26)~~.

12. (Currently amended): Process according to claim 11 ~~characterized in that~~ wherein

- one passes from the first mode of operation to the second mode of operation when the rotation speed of the shaft ~~(4)~~ of the wheels ~~(5)~~ is equal to the rotation speed of the element ~~(26)~~ of the assembly ~~(9)~~ to which the first switching device ~~(21.2)~~ is capable of being connected.

13. (Currently amended): Process according to claim 12 ~~characterized in that~~ wherein

- the rotation speed of the shaft ~~(10)~~ of the first machine ~~(6)~~ is null.

14. (Currently amended): Process according to ~~any one of claims 11 to 13 characterized in that~~ claim 11 wherein

- one passes from the second mode of operation to the third mode of operation when the rotation speed of the shaft ~~(2)~~ of the engine ~~(3)~~ is equal to the rotation speed of the element ~~(27)~~of the assembly ~~(9)~~ to which the second switching device ~~(21.2)~~ is capable of being connected.

15. (Currently amended): Process according to claim 14 ~~characterized in that~~ wherein

- the rotation speed of the shaft ~~(11)~~ of the second machine ~~(7)~~ is null.

16. Process according to ~~any one of claims 11 to 15 characterized in that~~ claim 11 wherein

- both electric machines ~~(6, 7)~~ are driven to compensate a difference in speeds between a shaft of one of the machines and the element to be connected at a time of passing from one mode

to another, with the help of a control device ~~(30)~~.